

ABSTRACT OF THE DISCLOSURE

Floating gate memories such as EEPROM and flash EEPROM have the memory state of a memory cell thereof determined by sensing the conduction current of the cell. Inherent noise fluctuations in the conduction current during
5 sensing are canceled out by averaging the sensing over a predetermined period of time. In one embodiment, as an integral part of the averaging process, the averaged conduction current is obtained directly as a digital memory state. Accuracy in sensing is therefore greatly improved by avoiding sensing noise with the current and avoiding having to resolve its memory state in the analog domain by
10 comparison with another noisy reference current. In another embodiment, conventional sensing techniques are improved when sensing is made by comparison with a reference current by means of a symmetric, switched or non-switched capacitor differential amplifier. The improved sensing accuracy allows higher resolution of conduction states, thereby allowing a cell to store substantially more
15 than one bit of information.